CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 86-20
NPDES NO. CA0028959

WASTE DISCHARGE REQUIREMENTS FOR:

THE CLOROX COMPANY
850 - 42ND AVENUE
OAKLAND, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. The Clorox Company, hereinafter called the discharger, by application dated December 12, 1985, has applied for issuance of waste discharge requirements and a permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES). The anticipated flow rates are 1,200 gallons per day during the wet season (November-April) and 500 gallons per day during the dry season (May-October).

2. The discharger's site occupies one block in an industrialized area of Oakland at High Street, about 0.4 miles east-northeast of the Alameda-Oakland Estuary (See site map, Attachment 1).

3. The discharger is principally involved in manufacturing and storing household dry bleach. In 1957, the discharger stopped producing liquid chlorine bleach product at this facility using element mercury call process.

4. Subsurface investigations were initiated by the discharger in 1980 in order to satisfy Federal Resource Conservation Recovery Act (RCRA) requirements. Site soil and shallow groundwater were found to be polluted with elemental mercury which had been used in the manufacture of liquid chlorine bleach at the plant prior to 1957.

5. The Highway 185 roadway, an underpass structure adjacent to the site, is about 20 feet below land surface. The dewatering system of Highway 185 consists of filter gravel and perforated drain pipes for shallow-zone groundwater removal. Groundwater samples from an underground drain pipe

near the discharger's plant contain a maximum concentration of mercury of 8.1 ppb, with a time-weighted average value of about 3.5 ppb during the last two years. The drain pipes located at the Highway 185 underpass discharge into a storm drain system. Groundwater and surface runoff eventually discharge into the Alameda-Oakland Estuary, a part of Lower San Francisco Bay. Due to dilution, the concentration of mercury in the outfall into the estuary is below the detection limit of 0.1 ppb. The present groundwater drainage system at the Highway 185 underpass averages 350 gallons per day (gpd) of polluted groundwater.

6. The lateral and vertical extent of mercury pollution has been investigated by 22 groundwater monitoring wells located on and off-site. There are 13 wells which monitor groundwater in the shallow zone and 9 wells which monitor deeper groundwater zones, to a maximum depth of 240 feet. The estimated average concentration of mercury in shallow groundwater along the western side of the Clorox plant, where the groundwater passes from the site on the Highway 185 subdrain system is about 2000 to 3000 ppb. Groundwater from one shallow on-site well has contained concentrations of mercury up to 10,000 ppb. Mercury has never been detected in any of the deeper monitoring wells.

7. The discharger has examined three final cleanup alternatives in some detail, from among a number of alternatives considered initially. Two of the alternatives include immediate remedial construction to intercept and treat polluted groundwater, but differ in the scope of construction and cost, one being more extensive than the other. The remaining alternative includes extensive groundwater monitoring with a remedial construction contingency only if elevated mercury levels are encountered in the off-site area. The report, "Remedial Action Assessment, Clorox, Oakland Plant", indicates that other alternatives besides these three were also examined but were determined to be either impractical or not cost effective.

   The discharger has selected the most comprehensive alternative consisting of groundwater monitoring and extensive remedial construction. Polluted, shallow groundwater will be extracted and treated at the site in order to contain and cleanup the mercury plume and to minimize the amount of mercury reaching San Francisco Bay.

8. The discharger proposes to construct an underground gravel drain along the west side of the plant site. This drain and the Highway 185 well dewatering system will intercept shallow groundwater which will be pumped to an off-site wastewater treatment system, to be constructed on the Clorox property near the plant site.

   The proposed groundwater treatment system consists of equilization, precipitation, filtration; pH adjustment; ion exchange; carbon adsorption; additional pH adjustment and aeration prior to discharge into the Oakland Estuary and San Francisco Bay.

9. The proposed drain and pumping system will create a reversal in the shallow groundwater flow direction in the off-site area west of the plant. The result of this flow reversal is that about 13.5 pounds of the estimated maximum of 18 pounds of mercury present in the off-site shallow groundwater will either be retrieved by the gravel drain or immobilized in soils. The discharger believes the concentration of mercury in the Highway 185 subdrain water near the plant will decrease with time. The proposed drain will preclude off-site migration of polluted groundwater on-site (approximately 28 pounds of mercury).

10. The proposed treatment system should remove more than 99% of the mercury present in the extracted groundwater.

11. To determine if mercury is being discharged in concentrations that are bioaccumulative beyond background levels present in the Alameda-Oakland Estuary, the discharger has proposed a biomonitoring program. The biomonitoring program will include the use of mussels as sentinels and will be consistent with the State's Mussel Watch Program.

12. The Regional Board adopted a revised Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region on July 21, 1982. The Basin Plan contains water quality objectives for Oakland Estuary and South San Francisco Bay and discharge prohibitions discussed below.

    The beneficial uses of Oakland Estuary and South San Francisco Bay include:

- Recreation
- Fish migration and habitat
- Estuarine habitat
- Warm fresh water and cold fresh water habitat
- Fish spawning and migration
- Industrial service supply
- Shellfishing
- Navigation
- Open commercial and sport fishing

13. The Basin Plan prohibits discharge of wastewater which has particular characteristics of concern to beneficial uses at any point where the wastewater does not receive a minimum initial dilution of at least 10:1.

14. The Basin Plan allows for exceptions to the prohibitions referred to in Finding 13 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.

15. Exceptions to the prohibitions referred to in Finding 14 are warranted because the discharge is an integral part of a program to cleanup contaminated groundwater and thereby produce an environmental benefit, and because receiving water concentrations are expected to be below levels that would effect beneficial uses. Should studies indicate chronic effects, not currently anticipated, the Board will review the requirements of this Order based upon section B.1.e.

16. The Basin Plan prohibits discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin." The discharger's groundwater extraction and treatment system and associated operation, maintenance, and monitoring plan constitutes an acceptable control program for minimizing the discharge of toxicants to waters of the State.

17. Effluent limitations of this Order are based on the Basin Plan, State Plans and Policies, and best engineering judgment.

18. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

19. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

20. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and the regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of waste containing constituent in excess of the following limit is prohibited:

Constituent	Unit	Daily Maximum
Total Mercury	mg/l	0.01

2. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.

3. In any representative set of samples, the discharge of waste shall meet the following limit of quality:

TOXICITY:

The survival of rainbow trout test fishes in 96 hour bioassays of the effluent as discharged shall be a median of 90% survival and a 90 percentile value of not less than 70 percent survival.

B. Receiving Water Limitations

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place:

a. Floating, suspended, or deposited macroscopic particulate matter or foam;

b. Bottom deposits or aquatic growths;

c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste from the Clorox plant shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

a.	Dissolved oxygen:	5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
b.	pH:	The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
c.	Un-ionized ammonia (as N):	0.025 mg/l Annual Median 0.4 mg/l Maximum at any time

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Board will revise and modify this Order in accordance with much more stringent standards.

C. Provisions

1. The discharger shall comply with all sections of this order immediately upon adoption.

2. The discharger shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer.

3. This Order includes all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated April 1977 except A.5, A.12, B.2, B.3, B.5, C.2, and C.4.

4. This Order expires March 19, 1991. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

5. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

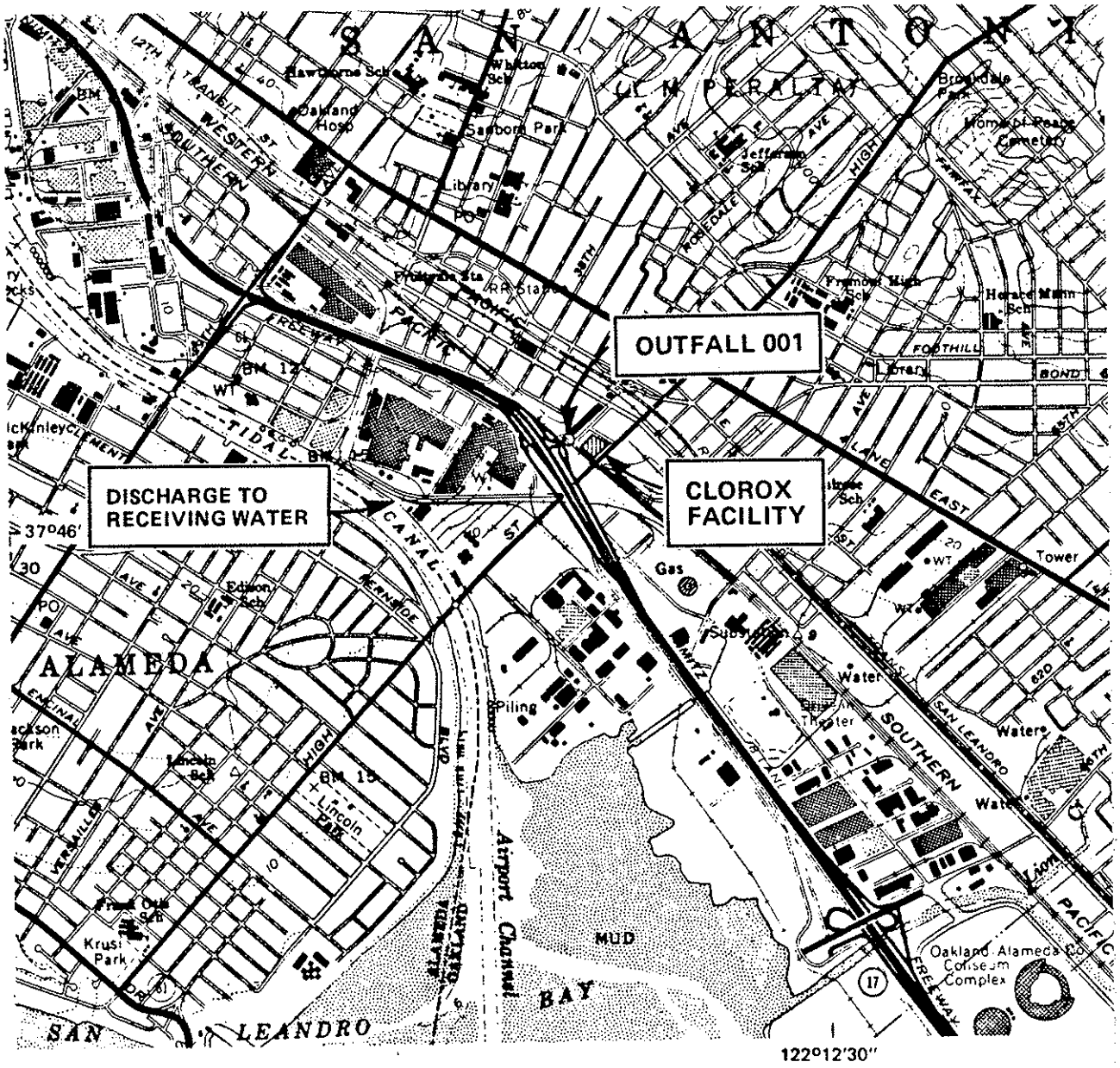
6. The discharger shall notify the Regional Board if any activity has occured or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit.

I, Roger B. James, Executive Officer do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on March 19, 1986.

ROGER B. JAMES
Executive Officer

Attachments:

Standard Provisions & Reporting Requirements, April 1977
Self-Monitoring Program
Site Map



USGS Map
Oakland East, California
Scale 1:24,000

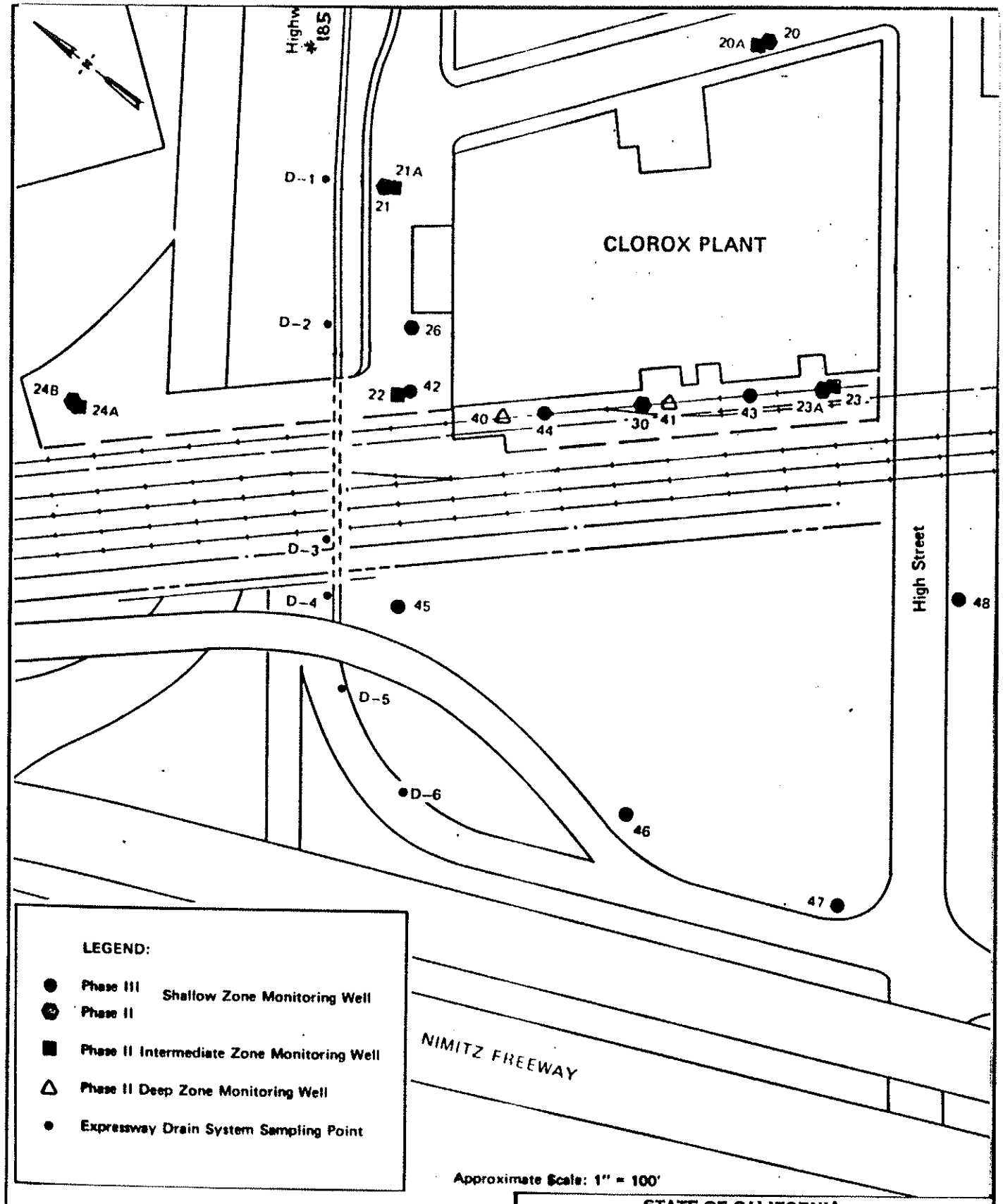
0 1,000 2,000 3,000 4,000 5,000 feet

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT 1 - SITE MAP
CLOROX COMPANY

OAKLAND, ALAMEDA COUNTY

DRAWN BY: AMG | DATE: 1-27-86 | DRWG. NO.



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT 2
SITE MAP
THE CLOROX COMPANY
OAKLAND, ALAMEDA COUNTY

DRAWN BY:	DATE: 9-3-86	DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

T E N T A T I V E

SELF-MONITORING PROGRAM
FOR

The Clorox Company

850 42nd Avenue

Oakland, Alameda County

NPDES NO. CA0028959

ORDER NO. 86-20

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent of other limitations, discharge prohibitions, national standards or performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the latest edition of Standard Methods for the Examination of Water and Wastewater prepared and published jointly by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation, EPA Standard Methods" 40 CFR Part 136, Vol. 40, No. 209 dated October 26, 1984, or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violations of Requirements

In the event the discharger is unable to comply with the conditions of the waste discharge requirements and prohibitions due to:

(a) maintenance work, power failures, or breakdown of waste treatment equipment, or

(b) accidents caused by human error or negligence, or

(c) other causes such as acts of nature,

(d) poor operation or inadequate system design,

The discharger shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

The dischager shall file a written report at least 15 days prior to advertising for bid on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, costs, and scheduling of all action necessary to preclude such discharge.

In addition, if the noncompliance caused by items (a), (b), (c), or (d) above is with respect to any of the effluent limits, the waste discharger shall promptly accelerate this monitoring program as required by the Board's Executive Officer for those constituents which have been violated. Such analysis shall continue until such time as the effluent limits have been attained, or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

2. Bypass Reports

Bypassing reporting shall be an integral part of regular monitoring program reporting. A report on bypassing of untreated waste or bypassing of any treatment units shall be made which will include cause, time and date, duration and estimated volume bypassed, method used in estimating volume, and persons and agencies notified. Notification to the Regional Board shall be made immediately by telephone (415-464-1255), followed by a written account within 15 days.

3. Self-Monitoring Reports

a. Reporting Period:

Written reports shall be filed regularly for each calendar quarter by the fifteenth day of the following month.

b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violation. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory.

Monitoring reports and the letter transmitting reports shall be signed either by a principal executive officer or other duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

c. Data Results:

(1) Results from each required analysis and observation shall be submitted in the quarterly self-monitoring report. Results shall also be submitted for any additional analyses performed by the discharger for parameters for which effluent limits have been established by the Board.

(2) The report shall include a discussion of unexpected operational changes which could affect performance of the treatment system, such as flow fluctuations, maintenance shutdown, etc.

(3) The report shall also include a table identifying by method number the analytical procedures used for analyses. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.

(4) Lab results should be copied and submitted as an appendix to the regular report.

(5) A map shall accompany the report, showing sampling locations and flow path to receiving waters.

(6) The report shall include an annual waste summary by month, for the current year showing the minimum, maximum, and average value for the month. The report for December shall include minimum, maximum and average for the year.

D. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station	Description
I-1	At a point in the groundwater collection system immediately prior to treatment (e.g. combined influent).

B. EFFLUENT

Station	Description
E-1	At a point in the outlet or outfall from the groundwater treatment system prior to discharge to the storm drain.

C. RECEIVING WATER

Station	Description
C-1	At a point in Oakland Inner Harbor at least 25 yards but not more than 50 yards downstream from the point of discharge.
C-2	At a point in Oakland Inner Harbor at least 25 yards but not more than 50 yards upstream from the point of discharge.

C-N	The selection of monitoring stations for biomonitoring, period of mussel deployment and analyses performed shall be acceptable to the Executive Officer. The methodology shall be consistent with the State's Mussel Watch Program.

E. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be that given as Table I.

I, Roger B. James, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 86-20.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.

ROGER B. JAMES
Executive Officer

Effective Date MARCH 27, 1986

Attachments: Table I
Site Map

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	I-1	E-1	C-1	C-2								
TYPE OF SAMPLE	G	G	G									
Flow Rate (gal/day)	D	D										
pH (units)	M/Q	M/Q	Q(1)	Q(1)								
Temperature (°C)	Q	Q										
Dissolved Oxygen (mg/l)			Q(1)	Q(1)								
Un-ionized Ammonia (as N)			Q(1)	Q(1)								
Total Mercury	W	W										
Bagged-Bivalve			2/Y	2/Y								
Fish Toxicity 96 hr. % Surv'l in undiluted waste		*/Y										

LEGEND FOR TABLE

W = weekly
G = grab sample
D = once each day
2/M = twice each month
Q = quarterly, once in March, June, September and December.
M/Q = monthly for three months at startup of operation; reduced to quarerly thereafter
2/Y = twice per year
*/Y = once, 120 days after starting of operation, then once per year

(1) Tidal stage at time of sampling to be noted and included in monitoring reports.